

### REMARKS/ARGUMENTS

Reconsideration is respectfully requested of the Final Official Action of March 21, 2007, relating to the above-identified application.

Claims 1 to 5 and 7 to 16 stand withdrawn from further consideration. Claim 17 has been amended by the foregoing amendment to correct the matters pointed out by the Examiner. Hence, the claims under consideration are 17, 19-21, 23-33, 35 and 36.

It is noted that Claims 19-21, 26-32 and 35 have been indicated as allowable if rewritten in independent form.

It is further noted that all previous rejections have been withdrawn.

The rejection of Claims 17, 24, 25, 33 and 36 under 35 U.S.C. § 102(b) as anticipated by *Furuya, et al.*, JP 06-111838, newly cited, is traversed and reconsideration is respectfully requested.

In the Office Action, the Examiner refers to Figures 1, 2 and 7, paragraphs [0034-0037], of *Furuya, et al.* Figures 1 and 2 show an apparatus having a stack of alternating flat plates 1 (referred to as reforming plates by the Examiner) and flat plates 2 (referred to as combustion plates), which are of identical geometric shape. The same relationship holds for plates 20 and 22 shown in Figure 7.

If plates 1 in Figures 1 and 2 of *Furuya, et al.*, are substantially right-parallelipetal wall elements which read on the wall elements of Claim 17 of the application, the same must be true for plates 2 of *Furuya, et al.*, because they have the same shape and geometry as plates 1.

Therefore, both plates 1 and 2 of *Furuya, et al.* are essentially the same.

Since neighboring plates 1 and 2 (wall elements) in Figures 1 and 2 are shown to be in direct contact with each other, it is clear that Figures 1 and 2 of *Furuya, et al.*, do not disclose reaction spaces formed between lateral surfaces of two spaced apart wall elements.

In order to use terminology in describing structures in *Furuya, et al.*, that can be related to terminology in Claim 17, plates 1 and 2 will be referred to as “wall elements”.

The wall elements shown as “2” in Figure 1 of the reference, when stacked together in a reactor apparatus, are in contact with each other in a stack. Applicants’ claims require that in the reactor the reaction spaces are formed between lateral surfaces of two spaced apart wall elements. In contrast, *Furuya, et al.*, shows a reactor formed of a stack of contacting plates 2 which are not spaced apart. While the reference shows spaces 3 when the plates are assembled and in contact with each other, the reference does not show that the plates are “spaced apart”. There is an important difference between 1) spaces 3 formed when two plates are in contact with each other as in the *Furuya, et al.*, reference, and 2) a reaction space formed between two spaced apart plates as defined by the claims herein.

Therefore, Figures 1 and 2 of *Furuya, et al.*, cannot anticipate the subject matter of Claim 17.

Figure 7 of *Furuya et al.*, shows a perspective view of a stack of alternating plates 20 and 22 which are also in direct contact with each other in the reactor stack. Plates 20 and 22 are not spaced apart. This becomes clear from paragraph [0034] describing the separation of the flow path through holes 25 and 26 from the flow path through holes 27 and 28, which necessarily requires plates 20 and 22 to be in direct contact in the operating state. The plates 20 and 22 must be in direct touching contact with each other so that the fluid will flow as shown by the

arrows in holes 25 and 26. If the plates 20 and 22 were spaced apart as required by applicants', the fluid would be lost and would not flow as shown in Figure 7.

Therefore, the above remarks regarding the inadequacies of Figures 1 and 2 of *Furuya, et al.*, apply to Figure 7 as well. Clearly, *Furuya, et al.*, does not anticipate the claimed subject matter.

In the Final Action on pages 2-3 in the discussion of wall elements, only plates 2 or 20 are referred to, whereas plates 1 and 22, which have the same shape and dimension as plates 2 and 20 are not referred to.

This is either an oversight or reveals a misunderstanding of the *Furuya, et al.*, structure.

*Furuya, et al.* discloses that the channels 3 of plate 1 and the channels 4 of plate 2 in Figures 1 and 2 are both reaction spaces, since Figure 2 shows the surface of plate 1 forming channel 3 to be coated with a reforming catalyst 6 for carrying out a reforming reaction and the surface of plate 2 forming channel 4 to be coated with a combustion catalyst 5 for carrying out a combustion reaction, as described in paragraph [0034].

The same also holds for plates 20 with channels 21 and plates 22 with channels 23 in Figure 7.

Therefore, the apparent position in the Final Action (page 3, lines 1-3) that only channels 3 or 23 of Figures 1, 2 and 7 are reaction spaces, whereas channels 4 or 21 are not, is in clear contradiction to the teachings of *Furuya, et al.*

Even if one were to follow the Examiner's construction of *Furuya, et al.*, and assume for the sake of argument that (1) plates 2 or 20 correspond to the wall elements of Claim 17, and

(2) plates 1 or 22 do not, and

(3) channels 3 or 23 correspond to the slot-shaped reaction spaces of Claim 17, and

(4) channels 4 or 22 do not,

the conclusion would follow that Figures 1, 2 and 7 of *Furuya, et al.*, would still not anticipate the subject matter of Claim 17, because channels 3 or 23 are not formed between lateral surfaces of two spaced apart wall elements made of plates 2 or 20.

Each of the channels 3 in Figure 2 of *Furuya, et al.*, is formed on only one plate and does not border on a second plate 2 that is spaced apart from the first plate.

The same is also true for channels 23 in Figure 7, which channels are formed on only one plate 20 and are not bordering a second plate 20 that is spaced apart from the first one.

The term “formed between lateral surfaces” in present Claim 17(a) requires the reaction spaces to be formed with the involvement of the surfaces and, therefore, a reaction space, which is somewhere between the wall elements, but not in contact with the surfaces, cannot read on this feature.

Claim 17 clearly distinguishes the reaction spaces formed between wall elements from tubular cavities for conducting a fluid heat-exchange medium, which therefore necessarily have to be within the wall elements.

Therefore, fluid flow paths 4 and 21 of *Furuya, et al.*, could read on the tubular cavities of Claim 17(d) only if the combination of two plates 1 and 2 (or 20 and 22) is construed as reading on a single wall element of the claim.

However, such a construction of *Furuya, et al.*, would still not anticipate the subject matter of Claim 17 because the pairs of plates 1 and 2 are not spaced apart in the stack of Figure 2 and pairs of plates 20 and 22 are not spaced apart in the stack of Figure 7 of *Furuya, et al.*

Therefore, in summary, *Furuya, et al.*, does not anticipate the claimed subject matter herein for the reason that the reference does not describe the feature of slot-shaped reaction spaces found between lateral surfaces of two spaced apart wall elements.

For all the reasons set forth above, applicants request that the rejection of the claims be withdrawn.

The rejection of Claim 23 under 35 U.S.C. § 103(a) in view of *Furuya, et al.*, taken with *Koga*, JP 04-310229, is traversed and reconsideration is respectfully requested.

Claim 23 depends on Claim 17 and calls for the reaction spaces to be filled with granular catalyst. All of the above remarks regarding *Furuya, et al.*, apply here as well with respect to Claim 23.

*Koga* merely shows that granular catalysts are known, which is not challenged by applicants.

However, even if *Koga's* granular catalyst were to be used in the *Furuya, et al.*, device, the combination would still not reach applicants' invention for the reasons given above.

*Furuya, et al.*, in combination with *Koga* simply fails to create *prima facie* obviousness of the claimed invention and therefore, the rejection should be withdrawn and Claim 23 passed to issue.

Favorable action at the Examiner's earliest convenience is respectfully requested.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP

By:   
Robert G. Weilacher, Reg. No. 20,531

Date: May 16, 2007  
Suite 3100, Promenade II  
1230 Peachtree Street, N.E.  
Atlanta, Georgia 30309-3592  
Telephone: (404) 815-3593  
Facsimile: (404) 685-6893